AMENDMENTS TO THE CLAIMS

Please amend claims 1, 3-10, 12, 13, 14, 16, 22, and 50, as set forth below.

Please cancel claims 9, 15 and 22.

Please add new claims 57-59.

Please withdraw claims 17-21, 24-49, and 51-56, without prejudice or disclaimer.

The current listing of claims replaces all prior listings.

1. (Currently amended) A substantially purified mammalian chondroitinase glycoprotein (CHASEGP) comprising[,] a ~~CHASEGP~~ soluble HYAL4 polypeptide encoded by a nucleic acid sequence as set forth in SEQ ID NO:5 ~~at least 1 N-linked sugar moiety, wherein said N-linked sugar moiety is covalently attached to an asparagine residue of said polypeptide~~.

2. (Withdrawn) The glycoprotein of claim-1, wherein the polypeptide is selected from the group of a polypeptide that comprises a sequence of amino acids encoded by nucleotides 642-2087 in SEQ ID No. 3 and includes at least about 74% amino acid sequence identity with the sequence of amino acids set forth in SEQ ID No. 1; a polypeptide that comprises a sequence of amino acids encoded by the sequence of nucleotides set forth in SEQ ID No. 2; a polypeptide that comprises a sequence of amino acids encoded by a sequence of nucleotides that hybridizes along at least 85% of its full-length under conditions of high stringency to the sequence of nucleotides set forth as nucleotides 642-2087 in SEQ ID No. 3.

3. (Currently amended) The glycoprotein of claim[-]1, wherein ~~said~~ a sugar moiety is covalently attached to an asparagine residue selected from the group ~~in SEQ ID No. 1 comprising~~ consisting of amino acid residues ~~number's~~ 52[86], 81[115] and 309[343] as set forth in SEQ ID NO:6.

4. (Currently amended) The glycoprotein of claim[-1] 3, wherein said sugar moiety is covalently linked to said glycoprotein through a asparagine peptide specific N-glycosidase F (PNGase) sensitive bond.

5. (Currently amended) The glycoprotein of claim[-1] 3, wherein said sugar moiety is of the high mannose type.

6. (Currently amended) The glycoprotein of claim [-1] 3, wherein said sugar moiety is of the complex type.

7. (Currently amended) The glycoprotein of claim[-1] 3, wherein said sugar moiety is of the hybrid type.

8. (Currently amended) The glycoprotein of claim [-1] 3, wherein said sugar moiety is substantially terminated with sial[[yl]]ic acid.

9. (Canceled)

10. (Withdrawn) The substantially purified glycoprotein of claim 1, wherein the chondroitinase domain comprised the sequence of amino acids set forth as amino acids 35-457 of SEQ ID No.1.

11. (Withdrawn) The substantially purified glycoprotein of claim 1 that has more that about 80% sequence identity with a polypeptide that comprises the sequence of amino acids set forth as SEQ ID No. 1 or as the sequence of amino acids set forth as SEQ ID No. 2, wherein the polypeptide is a chondroitinase.

12. (Currently amended) The glycoprotein [A] ~~polypeptide~~ of claim 1, wherein [~~the~~] a chondroitinase domain or the catalytically active portion thereof is encoded by a nucleic acid molecule that hybridizes under conditions of high stringency along at least 70% of its full-length to a nucleic acid molecule comprising a sequence of nucleotides set forth as nucleotides 726-1995 in SEQ ID No. 3 or [~~as~~] as set forth in SEQ ID. No. 5. ~~or at least one domain thereof or a catalytically active portion of the domain~~.

13. (Currently amended) The ~~substantially purified~~ glycoprotein of claim 1, wherein the CHASEGP is a human polypeptide.

14. (Currently amended) The [[A]] glycoprotein of claim[[-]]1, wherein [~~said CHASEGP~~] the polypeptide is encoded[[s]] by a nucleic acid sequence as set forth ~~soluble polypeptide as described~~ in SEQ ID NO. 5 [[6]].

15. (Canceled)

16. (Currently amended) The glycoprotein of claim 1, wherein[[:]] the polypeptide further ~~does not~~ comprises one or more domains selected from a polyhistidine domain, protein A domain, FLAG domain, Factor XA domain, or an eneterokinase domain, or a combination thereof ~~the complete sequence set forth in SEQ ID No. 1 and includes at least amino acids 35 to 264 of SEQ ID 1~~.

17. (Withdrawn) A glycoprotein of claim 1 that is a mutein, wherein: up to about 50% of the amino acids are replaced with another amino acid; and the resulting polypeptide is a single chain or two chain polypeptide that has catalytic activity of at least 10% of the unmutated polypeptide.

18. (Withdrawn) The glycoprotein of claim 17, wherein up to about 10% of the amino acids are replaced with another amino acid.

19. (Withdrawn) The glycoprotein of claim 17, wherein the resulting polypeptide is a single chain or two chain polypeptide and has catalytic activity of at least 50% of the unmutated polypeptide.

20. (Withdrawn) The glycoprotein of claim 17, wherein a free Cysteine in the chondroitinase domain is replaced with another amino acid

21. (Withdrawn) The glycoprotein of claim 20, wherein the replacing amino acid is a serine.

22. (Canceled)

23. (Withdrawn) A nucleic acid molecule, comprising a sequence of nucleotides that encodes the polypeptide of claim 1.

24. (Withdrawn) The nucleic acid molecule of claim 23 that comprises a sequence of nucleotides selected from the group consisting of: (a) a sequence of nucleotides set forth as nucleotides 726-1995 in SEQ ID No. 3; (b) a sequence of nucleotides that hybridizes under high stringency along its length or along at least about 70% of the full-length to the sequence of nucleotides set forth as nucleotides 726-1995 in SEQ ID No. 3 or as SEQ ID No. 5 (c) a sequence of nucleotides that encodes the polypeptide of SEQ ID No. 6; (d) a sequence of nucleotides that is a splice variant of a, b, or c); (e) a sequence of nucleotides that encodes the chondroitinase domain or a catalytically active portion thereof that includes a sequence of nucleotides having at least about 60%, 70%, 80%, 90% or 95% sequence identity the sequence set forth in SEQ ID Nos. 3,4 or 5; and (f) a sequence of nucleotides comprising degenerate codons of (a), (b),(c), (d) or (e).

25. (Withdrawn) An isolated nucleic molecule that encodes a mutein of claim 17.

26. (Withdrawn) A vector comprising the nucleic acid molecule of claim 23.

27. (Withdrawn) The vector of claim 26 that is an expression vector.

28. (Withdrawn) The vector of claim 26 that is a eukaryotic vector.

29. (Withdrawn) The vector of claim 26 that includes a sequence of nucleotides that directs secretion of any polypeptide encoded by a sequence of nucleotides operatively linked thereto.

30. (Withdrawn) The vector of claim 26 that is a Pichia vector or an E. coli vector.

31. (Withdrawn) A cell, comprising the vector of claim 26.

32. (Withdrawn) The cell of claim 31 that is a prokaryotic cell.

33. (Withdrawn) The cell of claim 31 that is a eukaryotic cell.

34. (Withdrawn) The cell of claim 31 that is selected from among a bacterial cell, a yeast cell, a plant cell, an insect cell and an animal cell.

35. (Withdrawn) The cell of claim 31 that is a mammalian cell.

36. (Withdrawn) A nucleic acid molecule encoding a polypeptide of claim 1.

37. (Withdrawn) A vector, comprising nucleic acid molecule of claim 23.

38. (Withdrawn) A cell, comprising the vector of claim 23.

39. (Withdrawn) A recombinant non-human animal, wherein an endogenous gene that encodes a polypeptide of claim 1 has been deleted or inactivated by homologous recombination or insertional mutagenesis of the animal or an ancestor thereof.

40. (Withdrawn) A method for generating soluble recombinant CHASEGP comprising, introduction of a nucleic acid as described in SEQ ID NO: 4 operably linked to a suitable promoter into a eukaryotic cell capable of incorporating said N-linked sugar moieties into CHASEGP.

41. (Withdrawn) The method of claim 40, wherein the eukaryotic cell is mammalian.

42. (Withdrawn) The method of claim 40, wherein said eukaryotic cell is an insect.

43. (Withdrawn) The method of claim 40, wherein said eukaryotic cell is a yeast

44. (Withdrawn) The method of claim 3, wherein said eukaryotic cell is a plant.

45. (Withdrawn) The method of claim 40, wherein the expressible polynucleotide is introduced into a cell ex vivo, thereby generating a genetically modified cell containing the expressible polynucleotide, and wherein administering the expressible polynucleotide to the subject comprises administering the genetically modified cell to the subject.

46. (Withdrawn) The method of claim 45, wherein the cell is autologous with respect to the subject.

47. (Withdrawn) The method of claim 45, wherein the cell is haplotype matched with respect to the subject.

48. (Withdrawn) A method for generating the CHASEGP comprising, contacting chondroitinase polypeptide of claim 1 with glycosyltransferase enzymes capable of introducing said N-linked sugar moieties to generate CHASEGP.

49. (Withdrawn) The method of claim 48 wherein the glycosyltransferase enzymes are derived from canine microsomal membranes.

50. (Currently amended) A composition[,] comprising a substantially purified chondroitinase glycoprotein (CHASEGP) ~~glycoprotein~~ in [~~conjunction with~~] a suitable pharmaceutical carrier, wherein the CHASEGP comprises a HYAL4 polypeptide truncated at a C-terminal residue within about 7 amino acids of an endogenous GPI cleavage site, and contains at least 1 N-linked sugar moiety, wherein said N-linked sugar moiety is covalently attached to an asparagine residue of the polypeptide.

51. (Withdrawn) A method for treating an animal suffering from an excess of CHASEGP substrate, said method comprising administration of a recombinant CHASEGP in an amount sufficient to remove said CHASEGP substrate.

52. (Withdrawn) The method of claim 51, wherein said excess substrate is produced from a scar tissue.

53. (Withdrawn) The method of claim 52, wherein said scar tissue is a glial scar resulting from spinal cord injury.

54. (Withdrawn) The method of claim 52, wherein said scar tissue is a result of surgery.

55. (Withdrawn) The method of claim 52, wherein said scar is a keloid scar.

56. (Withdrawn) The method of claim 51 wherein said substrate is associated with a herniated disk.

57. (New) The composition of claim 50, wherein the glycoprotein is encoded by a nucleic acid sequence set forth in SEQ ID NO:5.

58. (New) The composition of claim 50, wherein the glycoprotein is set forth in SEQ ID NO:6.

59. (New) The glycoprotein of claim 1, wherein the protein has an amino acid sequence as set forth in SEQ ID NO:6.